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10/523,590	02/04/2005	Toshihisa Kato	033294-047	5806

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EXAMINER	
SHIN, SARAH S	
ART UNIT	PAPER NUMBER
4182	

NOTIFICATION DATE	DELIVERY MODE
02/22/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/523,590	KATO ET AL.	
	Examiner	Art Unit	
	SARAH S. SHIN	4182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/04/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on August 6, 2002. It is noted, however, that applicant has not filed a certified copy of the foreign application as required by 35 U.S.C. 119(b).

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on February 4, 2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

3. Claims 1 and 2 were canceled.

Specification

4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If

the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it fails to meet the 150 word limit and includes extensive design details. Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities: The word “lolling” on page 4, line 20 should be changed to “rolling”. The word “is” should be changed to “be” on page 6, line 17 (“otherwise be generated during…"). The sentence”…the vehicles turns on a road…” on page 12, line 8

should be corrected to either read "...the vehicles turn..." or "...the vehicle turns..." The word "contract surface" on page 13, line 21 and page 47, line 17 should be changed to "contact surface". There are conflicting statements of the vehicle-body speed Vso in the situation where the absolute value of the steering angle Θs is at least 90° and the estimated vehicle-body speed Vso is less than a prescribed value, where page 26, lines 18-21 reads the control gear ratio decreases as the estimated vehicle-body speed Vso increases and page 30, lines 19-22 reads control gear ratio decreases as the estimated vehicle-body speed Vso decreases. The word "Net" on page 34, line 26 should be corrected to "Next".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 3-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herada et al. (US 6,081,761) and further in view of Mine et al. (US 6,208,927).

With respect to claim 3, Herada discloses a motion control apparatus for a vehicle comprising:

vehicle-body speed obtaining means for obtaining a vehicle-body speed of the vehicle (Column 2, lines 52-53, Column 8, lines 54-56);

steering-member operating amount obtaining means for obtaining an operating amount of a steering member of the vehicle which changes a steering angle of steerable wheels of the vehicle (Column 8, line 22);

actual lateral acceleration related quantity obtaining means for obtaining, as an actual lateral acceleration related quantity, an actual value of a lateral acceleration related quantity indicating the extent of turning of the vehicle (Column 2, lines 52-53, Column 8, lines 17);

target lateral acceleration related quantity calculating means for calculating a target lateral acceleration related quantity which is a target value of the lateral acceleration related quantity in accordance with the vehicle-body speed (Column 1, lines 19-21),

braking force control means for controlling a braking force applied to each of front and rear wheels of the vehicle so that the actual lateral acceleration related quantity approaches the target lateral acceleration related quantity (Column 3, lines 33-36 and Column 4, lines 51-56).

Herada fails to disclose when the vehicle-body speed is at least a prescribed value, the absolute value of the target lateral acceleration related quantity is equal to or less than the absolute value of a reference lateral acceleration related quantity which is a reference value of the lateral acceleration related quantity determined by a prescribed rule based on at least the vehicle-body speed and the steering-member operating amount and when the vehicle-

body speed is less than the prescribed value, the absolute value of the target lateral acceleration related quantity is greater than or equal to the absolute value of the reference lateral acceleration related quantity. However, Mine discloses when the vehicle-body speed is at least a prescribed value, the absolute value of the target lateral acceleration related quantity is equal to or less than the absolute value of a reference lateral acceleration related quantity (Column 15, lines 3-6) which is a reference value of the lateral acceleration related quantity determined by a prescribed rule based on at least the vehicle- body speed and the steering-member operating amount (Column 14, lines 29-41 where the target lateral acceleration is the allowable lateral acceleration and the friction coefficient is based on the steering angle as described in Column 6, lines 19-23). It would have been obvious to one skilled in the art at the time the invention was made to include the calculations of the target and reference lateral accelerations as taught by Mine and use a prescribed rule based on the vehicle-body speed and the steering member operating amount in order to enhance the safety while driving and optimize the vehicle maneuvering control (Column 15, lines 3-4 and Column 25, lines 31-36). Mine does not explicitly state that when the vehicle-body speed is less than the prescribed value, the absolute value of the target lateral acceleration related quantity is greater than or equal to the absolute value of the reference lateral acceleration related quantity. However it is implicit that the allowable lateral acceleration will increase at lower vehicle speeds (Column 15, lines 3-6). Mine does not address that the value of the target and reference lateral acceleration are absolute values, but it would have been obvious to one

skilled in the art at the time the invention was made to use absolute values in order to simplify the calculations of the lateral acceleration by allowing the comparisons/calculations to be performed without regards to the sign of the value, where the direction of the acceleration is immaterial to the calculation of the target lateral acceleration.

With respect to claim 4, Herada fails to disclose the target lateral acceleration related quantity calculating means changes the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity in accordance with the steering-member operating amount. However, Mine discloses a target lateral acceleration related quantity calculating means changes the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity in accordance with the steering-member operating amount (Column 14, lines 29-41 where the target lateral acceleration is the allowable lateral acceleration and the friction coefficient is based on the steering angle as described in Column 6, lines 19-23). It would have been obvious to one skilled in the art at the time the invention was made to include the quantity deviates from the reference lateral acceleration in accordance with the steering-member operating amount in order to enhance the driving safety and optimize vehicle maneuvering control (Column 15, lines 3-4 and Column 25, lines 31-36).

With respect to claim 5, Herada fails to disclose the prescribed rule determines the reference lateral acceleration related quantity based on an actual specification value of the vehicle which influences the turning properties of the vehicle. However Mine discloses a prescribed rule determines the reference lateral acceleration related quantity based on an actual specification value of the vehicle which influences the turning properties of the vehicle (Column 14, lines 29-32 where the friction coefficient estimation takes the cornering power of the tire into consideration as described in Column 6, lines 36-41 and Column 7, lines 19, 33-44 and n in formula (8) represents the steering gear ratio). It would have been obvious to one skilled in the art at the time the invention was made to include use the actual specification value in order to obtain more accurate estimation of the friction coefficient (Column 7, lines 51-53).

; and

Herada discloses the target lateral acceleration related quantity calculating means calculates, as the target lateral acceleration related quantity, the reference lateral acceleration related quantity determined in accordance with the prescribed rule and on the basis of a control specification value instead of the actual specification value, the control specification value being deviated from the actual specification value in accordance with the vehicle-body speed or the vehicle- body speed and the steering-member operating amount (Column 1, lines 17-21).

With respect to claim 6, Herada discloses a motion control apparatus for a vehicle comprising:

vehicle-body speed obtaining means for obtaining a vehicle-body speed of the vehicle (Column 2, lines 52-53, Column 8, lines 54-56);

steering-member operating amount obtaining means for obtaining an operating amount of a steering member of the vehicle which changes a steering angle of steerable wheels of the vehicle (Column 8, line 22);

actual lateral acceleration related quantity obtaining means for obtaining, as an actual lateral acceleration related quantity, an actual value of a lateral acceleration related quantity indicating the extent of turning of the vehicle (Column 2, lines 52-53, Column 8, lines 17);

target lateral acceleration related quantity calculating means for calculating a target lateral acceleration related quantity which is a target value of the lateral acceleration related quantity (Column 1, lines 19-21),

braking force control means for controlling a braking force applied to each of front and rear wheels of the vehicle so that the actual lateral acceleration related quantity approaches the target lateral acceleration related quantity (Column 3, lines 33-36 and Column 4, lines 51-56).

Herada fails to disclose the absolute value of the target lateral acceleration related quantity is equal to or less than the absolute value of a reference lateral acceleration related quantity which is a reference value of the lateral acceleration related quantity determined by a prescribed rule based on at least the vehicle-body speed and the steering-member operating amount.

However, Mine discloses the absolute value of the target lateral acceleration related quantity is equal to or less than the absolute value of a reference lateral acceleration related quantity (Column 15, lines 3-6) which is a reference value of the lateral acceleration related quantity determined by a prescribed rule based on at least the vehicle-body speed and the steering-member operating amount (Column 14, lines 29-41 where the target is the allowable lateral acceleration and the friction coefficient is based on the steering angle as described in Column 6, lines 19-23). It would have been obvious to one skilled in the art at the time the invention was made to include the calculations of the target and reference lateral accelerations as taught by Mine and use a prescribed rule based on the vehicle-body speed and the steering member operating amount in order to enhance the safety while driving and optimize the vehicle maneuvering control (Column 15, lines 3-4 and Column 25, lines 31-36).

With respect to claim 7, Herada fails to disclose the target lateral acceleration related quantity calculating means is constructed such that the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity changes in accordance with the absolute value of the reference lateral acceleration related quantity. However, Mine discloses a target lateral acceleration related quantity calculating means is constructed such that the amount by which the target lateral acceleration related quantity deviates from the reference lateral acceleration related quantity changes in accordance with the absolute value of the reference lateral acceleration related

quantity. (Column 14, lines 26-41). It would have been obvious to one skilled in the art at the time the invention was made to deviate the target lateral acceleration as taught by Mine in order to optimize vehicle maneuvering control (Column 25, lines 31-39). Mine does not address that the value of the target and reference lateral acceleration are absolute values, but it would have been obvious to one skilled in the art at the time the invention was made to use absolute values in order to simplify the calculations of the lateral acceleration by allowing the comparisons/calculations to be performed without regards to the sign of the value, where the direction of the acceleration is immaterial to the calculation of the target lateral acceleration.

With respect to claim 8, Herada discloses the target lateral acceleration related quantity calculating means is constructed to calculate the target lateral acceleration related quantity in such a manner that the absolute value of the target lateral acceleration related quantity does not exceed a target lateral acceleration related quantity limiting value, which is set in accordance with an actual specification value of the vehicle which influences the generated roll angle of the vehicle (Column 10, lines 8-29).

With respect to claim 9, Herada discloses road-surface friction coefficient obtaining means for obtaining a road-surface friction coefficient, which is the coefficient of friction between a road surface on which the vehicle travels and tires of the wheels of the vehicle (Column 4, line 67 and Column 5, lines1-2); and

target lateral acceleration related quantity limiting means for setting a target lateral acceleration related quantity limiting value in accordance with the road-surface friction coefficient and for limiting the target lateral acceleration related quantity (Column 13, lines 13-23) , when the absolute value of the target lateral acceleration related quantity is greater than the target lateral acceleration related quantity limiting value, in such a manner that the absolute value of the target lateral acceleration related quantity coincides with the target lateral acceleration related quantity limiting value (Column 13, lines 24-29). Herada does not address that the value of the target and reference lateral acceleration are absolute values, but it would have been obvious to one skilled in the art at the time the invention was made to in order to simplify the calculations of the lateral acceleration by allowing the comparisons/calculations to be performed without regards to the sign of the value, where the direction of the acceleration is immaterial to the calculation of the target lateral acceleration.

With respect to claim 10, Herada does not disclose the prescribed rule determines the reference lateral acceleration related quantity based on an actual specification value of the vehicle which influences the turning properties of the vehicle. However, Mine discloses the prescribed rule determines the reference lateral acceleration related quantity based on an actual specification value of the vehicle which influences the turning properties of the vehicle (Column 14, lines 29-32 where the friction coefficient estimation takes the cornering power of the tire into consideration as described in Column 6, lines 36-41 and Column 7, lines

19, 33-44 and n in formula (8) represents the steering gear ratio). It would have been obvious to one skilled in the art at the time the invention was made to use an actual specification value in order to obtain more accurate estimation of the friction coefficient and hence the lateral acceleration values (Column 7, lines 51-53).

Herada discloses the target lateral acceleration related quantity calculating means calculates, as the target lateral acceleration related quantity, the reference lateral acceleration related quantity determined in accordance with the prescribed rule and on the basis of a control specification value instead of the actual specification value, the control specification value being deviated from the actual specification value in accordance with the vehicle-body speed or the vehicle- body speed and the steering-member operating amount (Column 1, lines 17-21).

With respect to claim 11, Herada discloses the target lateral acceleration related quantity calculating means is constructed to calculate the target lateral acceleration related quantity in such a manner that the absolute value of the target lateral acceleration related quantity does not exceed a target lateral acceleration related quantity limiting value, which is set in accordance with an actual specification value of the vehicle which influences the generated roll angle of the vehicle (Column 10, lines 8-29).

With respect to claim 12, Herada discloses a road-surface friction coefficient obtaining means for obtaining a road-surface friction coefficient, which is the coefficient of friction between a road surface on which the vehicle travels and tires of the wheels of the vehicle (Column 4, line 67 and Column 5, lines1-2); and target lateral acceleration related quantity limiting means for setting a target lateral acceleration related quantity limiting value in accordance with the road-surface friction coefficient and for limiting the target lateral acceleration related quantity (Column 13, lines 13-23),

when the absolute value of the target lateral acceleration related quantity is greater than the target lateral acceleration related quantity limiting value, in such a manner that the absolute value of the target lateral acceleration related quantity coincides with the target lateral acceleration related quantity limiting value (Column 13, lines 24-29).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsuno (US 6,163,747) discloses calculations of the lateral acceleration using absolute values of the reference and actual lateral accelerations.

Okada (US 6,092,014) discloses a vehicle driving condition prediction device that takes into consideration the roll angle when calculating the lateral acceleration.

Nakashima et al. (US 5,869,943) discloses a vehicle motion control system for stability that incorporates various specification values including the height of the vehicle from the ground at each wheel.

Matsuura et al. (US 6,778,896) discloses lateral acceleration setting means while approaching a curve.

Brown (US 6,324,446) discloses a stability control system that senses dynamic conditions of the vehicle, including the roll angle.

Matsuno (US 5,259,476) discloses an ideal lateral acceleration calculation based on vehicle speed and steering angle.

Hac et al. (US 6,125,319) discloses a brake system control method that determines braking situations based on various inputs to the controller including the lateral acceleration of a vehicle.

Hirao et al. (US 5,636,909) discloses a traction control system that takes the yaw rate or the lateral acceleration into consideration.

McDermott, Jr. et al. (US 6,301,534) discloses a directional control system that compares the received desired lateral acceleration and an actual lateral acceleration.

Irie et al. (US 6,497,298) discloses a vehicle traction control system that takes into consideration a stability factor such as a wheel base and steering gear ratio.

Ishizu et al. (US 2001/0044691) discloses a vehicle speed control system that takes into consideration various specification values and the lateral acceleration.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARAH S. SHIN whose telephone number is (571)270-1812. The examiner can normally be reached on Mon-Fri, 7:00AM-4:30PM Alt. Fri, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thu Nguyen can be reached on 571-272-6967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

February 7, 2008
/Sarah S Shin/
Examiner, Art Unit 4182

/Thu Nguyen/
Supervisory Patent Examiner, Art Unit 4182